

# Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v3.5.64



Product: 3080061 - AS+ Pipe LGY DN50 L=2 S/PL  
 Unit: 1 piece  
 Manufacturer: Wavin Germany Twist  
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 Germany  
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LCA standard: EN15804+A2 (2019)  
 Standard database: Worldwide - Ecoinvent v 3.6 Cut-Off  
 Externally verified: Yes  
 Issue date: 08-04-2022  
 End of validity: 08-04-2027  
 Verifier: Harry van Ewijk - SGS Search



This LCA was evaluated according to EN15804+A2. It was concluded that the LCA complies with this standard.

Wavin AS+ is a mineral-reinforced polypropylene (PP) low noise soil and waste solution. The AS+ has a unique material composition for optimal noise reduction.

The LCA background information and project dossier have been registered in the online Ecochain application in the account Wavin Germany Twist (2020). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	☑	☑	☑	☑

## Product stage

A1 Raw material supply A2 Transport A3 Manufacturing

## Construction process stage

A4 Transport gate to site  
 A5 Assembly / Construction installation process

## Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment  
 B6 Operational energy use B7 Operational water use

## End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing  
 C4 Disposal

## Benefits and loads beyond the system boundaries

D Reuse- Recovery- Recycling- potential

## Environmental impacts and parameters

**GWP-total** = EF Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF Climate Change - Land use and LU change [kg CO2 eq]; **ODP** = EF Ozone depletion [kg CFC11 eq]; **AP** = EF Acidification [mol H+ eq]; **EP-fw** = EF Eutrophication, freshwater [kg P eq]; **EP-m** = EF Eutrophication, marine [kg N eq]; **EP-T** = EF Eutrophication, terrestrial [mol N eq]; **POCP** = EF Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **WDP** = EF Water use [m3 depriv.]; **PM** = EF Particulate matter [disease inc.]; **IR** = EF Ionising radiation [kBq U-235 eq]; **ETP-fw** = EF Ecotoxicity, freshwater [CTUe]; **HTP-c** = EF Human toxicity, cancer [CTUh]; **HTP-nc** = EF Human toxicity, non-cancer [CTUh]; **SQP** = EF Land use [Pt]; **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; **PERM** = Use of renewable primary energy resources used as raw materials [MJ]; **PERT** = Total use of renewable primary energy resources [MJ]; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; **PENRM** = Use of non-renewable primary energy resources used as raw materials [MJ]; **PENRT** = Total use of non-renewable primary energy resources [MJ]; **PET** = Total energy [MJ]; **SM** = Use of secondary material [kg]; **RSF** = Use of renewable secondary fuels [MJ]; **NRSF** = Use of non-renewable secondary fuels [MJ]; **FW** = Use of net fresh water [m3]; **HWD** = Hazardous waste disposed [kg]; **NHWD** = Non-hazardous waste disposed [kg]; **RWD** = Radioactive waste disposed [kg]; **CRU** = Components for re-use [kg]; **MFR** = Materials for recycling [kg]; **MER** = Materials for energy recovery [kg]; **EE** = Exported energy [MJ]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

## Statement of Confidentiality

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# Results

Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	2.35E+0	6.64E-2	1.26E-1	2.54E+0	4.46E-2	1.19E+0	8.62E-3	-1.56E+0	2.23E+0
GWP-f	kg CO2 eq	2.36E+0	6.64E-2	1.05E-1	2.53E+0	4.46E-2	1.19E+0	8.61E-3	-1.56E+0	2.21E+0
GWP-b	kg CO2 eq	-4.65E-3	3.06E-5	1.55E-2	1.09E-2	2.71E-5	4.74E-3	1.57E-5	-6.24E-3	9.43E-3
GWP-luluc	kg CO2 eq	1.37E-3	2.43E-5	6.16E-3	7.55E-3	1.58E-5	3.44E-4	3.27E-7	-3.43E-4	7.57E-3
ODP	kg CFC11 eq	1.57E-7	1.47E-8	1.27E-8	1.84E-7	1.03E-8	7.53E-8	5.05E-10	-4.22E-8	2.28E-7
AP	mol H+ eq	9.87E-3	3.85E-4	4.78E-4	1.07E-2	2.54E-4	1.88E-3	1.18E-5	-4.88E-3	8.00E-3
EP-fw	kg P eq	5.66E-5	6.70E-7	1.47E-6	5.87E-5	3.67E-7	1.61E-5	1.48E-8	-1.96E-5	5.56E-5
EP-m	kg N eq	1.80E-3	1.36E-4	1.41E-4	2.08E-3	9.09E-5	4.88E-4	6.88E-6	-8.36E-4	1.83E-3
EP-T	mol N eq	2.05E-2	1.50E-3	1.47E-3	2.35E-2	1.00E-3	5.39E-3	4.82E-5	-9.27E-3	2.07E-2
POCP	kg NMVOC eq	7.49E-3	4.27E-4	4.21E-4	8.34E-3	2.86E-4	1.67E-3	1.55E-5	-4.35E-3	5.96E-3
ADP-mm	kg Sb eq	1.72E-4	1.68E-6	1.72E-6	1.75E-4	1.15E-6	6.73E-6	1.18E-8	-1.21E-5	1.71E-4
ADP-f	MJ	5.47E+1	1.00E+0	1.35E+0	5.71E+1	6.85E-1	5.95E+0	3.65E-2	-5.26E+1	1.12E+1
WDP	m3 depriv.	2.33E+0	3.58E-3	7.37E-1	3.07E+0	2.10E-3	1.33E-1	1.81E-4	-9.73E-1	2.23E+0
PM	disease inc.	8.47E-8	5.96E-9	7.40E-9	9.80E-8	4.03E-9	3.06E-8	2.50E-10	-4.17E-8	9.13E-8
IR	kBq U-235 eq	8.36E-2	4.19E-3	1.94E-3	8.97E-2	2.99E-3	2.05E-2	1.67E-4	-2.55E-2	8.79E-2
ETP-fw	CTUe	5.37E+2	8.93E-1	1.74E+0	5.40E+2	5.56E-1	1.29E+1	2.87E-2	-6.96E+0	5.46E+2
HTP-c	CTUh	8.48E-10	2.90E-11	7.69E-11	9.54E-10	1.98E-11	7.61E-10	8.41E-13	-2.83E-10	1.45E-9
HTP-nc	CTUh	2.60E-7	9.76E-10	1.79E-9	2.63E-7	6.63E-10	1.00E-8	1.74E-11	-8.27E-9	2.65E-7
SQP	Pt	6.55E+0	8.68E-1	1.47E-1	7.57E+0	5.86E-1	4.25E+0	9.27E-2	-1.45E+0	1.10E+1
Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.71E+0	1.25E-2	3.32E+0	5.04E+0	9.82E-3	5.00E-1	1.30E-3	-7.03E-1	4.85E+0
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.71E+0	1.25E-2	3.32E+0	5.04E+0	9.82E-3	5.00E-1	1.30E-3	-7.03E-1	4.85E+0
PENRE	MJ	5.86E+1	1.06E+0	1.47E+0	6.11E+1	7.27E-1	6.33E+0	3.87E-2	-5.65E+1	1.17E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	5.86E+1	1.06E+0	1.47E+0	6.11E+1	7.27E-1	6.33E+0	3.87E-2	-5.65E+1	1.17E+1
PET	MJ	6.03E+1	1.08E+0	4.79E+0	6.62E+1	7.37E-1	6.83E+0	4.00E-2	-5.72E+1	1.66E+1
SM	kg	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m3	5.11E-2	1.22E-4	1.73E-2	6.85E-2	7.75E-5	3.97E-3	4.48E-5	-1.45E-2	5.81E-2

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.14E-5	2.54E-6	1.83E-6	2.58E-5	1.75E-6	1.25E-5	4.38E-8	-8.33E-6	3.18E-5
NHWD	kg	1.81E-1	6.35E-2	7.62E-3	2.52E-1	4.24E-2	2.86E-1	1.70E-1	-4.21E-2	7.08E-1
RWD	kg	8.84E-5	6.57E-6	2.67E-6	9.76E-5	4.66E-6	2.58E-5	2.39E-7	-2.24E-5	1.06E-4
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0



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